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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

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TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

SHRIMP PICKER (can. & preserv.) 8-04.10

B-542

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U. S. Employment Service
in Cooperation with
Oregon State Employment Service

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GATB #2444

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

SHRIMP PICKER (can. & preserv.) 8-04.10

B-542 S-265

Summary

The General Aptitude Test Battery, B-1002B, was administered to a final sample of 51 women employed as Shrimp Pickers 8-04.10 at Hallmark Fisheries Company, Charleston, and Eureka Fisheries, Incorporated, Empire, Oregon. The criterion consisted of average hourly earnings. On the basis of mean scores, standard deviations, correlations, with the criterion, job analysis data and their combined selective efficiency, Aptitudes K-Motor Coordination and M-Manual Dexterity were selected for inclusion in the final test norms.

GATB Norms for Shrimp Picker 8-04.10.

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
T	CB-1- G CB-1- K	80	K	Part 8	85
M	CB-1- M CB-1- N	90	M	Part 9 Part 10	85

Effectiveness of Norms

The data in Table IV indicate that only 74 percent of the non-test-selected workers used for this study were good workers; if the workers had been test-selected with the above norms, 87 percent would have been good workers. 26 percent of the non-test-selected workers used for this study were poor workers; if the workers had been test-selected with the above norms, only 13 percent would have been poor workers.

TECHNICAL REPORT

I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupation of Shrimp Picker 8-04.10.

II. Sample

The General Aptitude Test Battery, B-1002B, was administered during the period July 16 through August 23, 1962 to a sample of 64 women employed as Shrimp Pickers 8-04.10 at three companies in Oregon. The names and locations of the companies and the number of workers tested at each company are as follows:

Company	Location	Number Tested
Eureka Fisheries, Inc.	Empire, Oregon	36
Fishermen's Cooperative	(North Bend Area)	7
Hallmark Fisheries	Charleston, Oregon	21
		64

The final experimental sample consisted of 51 women. Thirteen of the tested workers were eliminated from the final sample because their supervisory ratings were considered invalid. In selecting applicants for employment at the above companies there are no age or education requirements and no tests are administered. The minimum training period is approximately one week; all workers in the final sample are considered experienced.

TABLE I

Means (M), Standard Deviations (σ), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, and Experience

N = 51	M	σ	Range	r
Age (years)	41.5	10.3	17-70	-.030
Education (years)	9.8	2.1	#1-14	.113
Experience (months)	16.3	16.1	2-48	.329*

*Significant at the .05 level

#One worker had only one year of education but was retained in the final sample because her scores compared favorably with the mean scores for the sample. For N = 49, the education range is 8-14.

III. Job Description

Job Title: Shrimp Picker (can. and preserv.) 8-04.10

Job Summary: Sits on stands at waist high work table and removes heads and shells from shrimp.

Work Performed: Prepares to shell shrimp while sitting or standing at work table by drawing supply of shrimp to work station from pile in center of table. Picks up shrimp and by hand pulls shell from tail; twisting and/or turning motions of the hand are necessary to remove shell. Drops removed portion of shell, grasps protruding portion of body and pulls shrimp from remaining portion of shell. Tosses deshelled shrimp into bowl container. Rinses fingers in clear water periodically to remove clinging portions of shell and whiskers. Inspects cleaned shrimp continuously to insure that all shells, whiskers, or other materials are removed. Scrapes emptied shells from table to floor. Carries filled containers of cleaned shrimp to weighing scales.

IV. Experimental Battery

All the tests of the GATB, B-1002B, were administered to the sample group.

V. Criterion

The final criterion consisted of average hourly earnings. Earnings, on a piece rate basis, for a minimum of 75 hours of work between July 7 and September 15, 1962 were used in determining each individual's average hourly earnings.

VI. Qualitative and Quantitative Analyses

A. Qualitative Analysis:

On the basis of the job analysis data, the following aptitudes were rated "important" for success in this occupation:

Motor Coordination (K) - required in reaching for and picking up shrimp, and in removing shells.

Finger Dexterity (F) - required in removing shells and whiskers from shrimp.

Manual Dexterity (M) - required in pulling supply of shrimp from table to work station, scraping shrimp, and in handling containers of cleaned shrimp.

On the basis of the job analysis data, V-Verbal Aptitude, N-Numerical Aptitude, and Q-Clerical Perception were rated "irrelevant" for success in this occupation.

B. Quantitative Analysis:

TABLE II

Means (M), Standard Deviations (σ), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; N = 51

Aptitudes	M	σ	r
G-Intelligence	92.941	19.758	.081
V-Verbal Aptitude	96.510	17.409	.071
N-Numerical Aptitude	87.294	19.114	.080
S-Spatial Aptitude	94.020	19.742	.009
P-Form Perception	97.765	24.210	.186
Q-Clerical Perception	95.980	13.629	.153
K-Motor Coordination	99.647	15.159	.368**
F-Finger Dexterity	94.569	18.151	.194
M-Manual Dexterity	98.020	20.780	.384**

**Significant at the .01 level

C. Selection of Test Norms:

TABLE III

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important							X	X	X
Irrelevant		X	X			X			
Relatively High Mean					X		X		X
Relatively Low Sigma						X			
Significant Correlation with Criterion							X		X
Aptitudes to be Considered for Trial Norms							K		M

Trial norms consisting of various combinations of Aptitudes K and M with appropriate cutting scores were evaluated against the criterion by means of the Phi Coefficient technique. A comparison of the results showed that B-1002 norms consisting of K-85 and M-85 had the best selective efficiency.

VII. Validity of Norms

The validity of the norms was determined by computing a Phi Coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing 26 percent of the sample in the low criterion group because this percent was considered to be the unsatisfactory or marginal workers.

Table IV shows the relationship between test norms consisting of Aptitudes K-Motor Coordination and M-Manual Dexterity with a critical score of 85 on each and the dichotomized criterion for Shrimp Picker 8-04.10. Workers in the high criterion group have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE IV

Validity of Test Norms for Shrimp Picker 8-04.10
(K-85, M-85)

N = 51	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Workers	5	33	38
Poor Workers	8	5	13
Total	13	38	51

Phi Coefficient = .484
X^2 = 11.944
P/2 < .0005

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

VIII. Conclusions

On the basis of the results of this study, Aptitudes K and M with a minimum score of 85 on each have been established as B-1002 norms for Shrimp Picker 8-04.10. The equivalent B-1001 norms consist of T-80 and M-90.

IX. Determination of Occupational Aptitude Pattern

The data for this study met the requirements for incorporating the occupation studied into OAP-31 which is shown in Section II of the Guide to the Use of the General Aptitude Test Battery, January 1962.